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Soil Conservation Service, Bismarck, North Dakota
Agricultural Research Service, Mandan, North Dakota

'Mankota' Russian wildrye



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'Mankota' Russian wildrye (Mandan R1808, PI 556988) was released cooperatively in March 1991 by the USDA Agricultural Research Service, the USDA Soil Conservation Service, and the North Dakota Agricultural Experiment Station. Mankota is recommended for pasture to complement native rangeland in the northern Great Plains, particularly during late summer, fall, and early winter when nutritive quality of Russian wildrye is high compared with most other grasses. Mankota traces to plants selected from a source population of 29 different cultivars, experimental strains, and plant introductions. Selected plants were tested at the Northern Great Plains Research Laboratory, Mandan, North Dakota, to determine seedling emergence from a 2-inch planting depth, stand establishment, resistance to leaf-spot diseases, lodging, and forage and seed yields.

Description

Russian wildrye is a cool-season bunchgrass introduced primarily from Siberia and central Asia. Russian wildrye will head about 6 weeks after growth is initiated in early spring. Plants produce an abundance of basal leaves with relatively few seed stalks. The forage cures well and maintains relatively high levels of protein and digestibility with advancing maturity. Mankota is 2 to 3 days later in heading, and seed stalks average about 6 inches taller than other current Russian wildrye cultivars. Mankota has greater seedling vigor than 'Vinall', but establishes less readily than the cultivar 'Swift'.

Moderate grazing of Mankota is usually possible in the second year after seeding.

Adaptation

Mankota is adapted to a wide range of environments in the northern Great Plains. Russian wildrye is drought tolerant and is most commonly used in areas where annual precipitation averages less than 16 inches. Russian wildrye is better adapted to fine- than to coarse-textured soils and is able to tolerate moderate levels of soil salinity. In regional tests, dry matter yields of forage from 20 station years at 6 sites averaged 17% higher for Mankota than the check cultivar, Swift. During the three drought years of 1988-90, dry matter yields at Mandan, North Dakota, averaged 1682 and 1229 lb/ac, respectively, for Mankota and Swift, a 37% advantage for Mankota. The primary area of adaptation for Mankota is indicated on the map.



Uses

Russian wildrye is better suited to grazing than to hay production. Russian wildrye usually is sown alone, because it develops an extensive root system that provides high plant competition to most other forage species. Once established, Russian wildrye is tolerant of heavy fall grazing, and the basal leaves provide high quality forage. Fall regrowth is rapid if soil water is adequate. A valuable use for Mankota would be complementary pasture that would extend the fall grazing season when nutritional quality of most other grasses is low.

Establishment

Russian wildrye seedlings develop slowly compared with many other cool-season grasses such as intermediate wheatgrass, crested wheatgrass, and smooth brome. Stand establishment is enhanced by seeding into a well-packed, weed-free seedbed. Shallow seed depth (less than 1 inch) is essential. Chemical weed control after the seedlings have developed beyond the 3-leaf stage will hasten and improve stand establishment. Successful stands are obtained by seeding in early spring, late summer if soil water is adequate, or by use of a dormant seeding in late fall when soil temperature is maintained below 40 degrees F. Row spacings of 2 to 3 feet are recommended for pastures in dry areas, and 1 to 2 feet are recommended for more humid areas where annual precipitation averages over 14 inches. Row spacings less than 2 feet will tend to suppress the production of seed stalks, which will increase forage quality

of pastures. A seeding rate of 30 pure live seeds (PLS) per lineal foot of row is recommended. This is equivalent to 8-10 lb/ac of PLS for a 1-foot row spacing.

Seed Production

Seed yield of Russian wildrye is hampered by low production of seed stalks, which may occur even when vegetative growth is relatively vigorous. Adequate soil water and soil fertility are essential to maintain high seed yields. Nitrogen fertilizer is needed to maintain seed production in long-term seed fields. At Mandan, North Dakota, seed yields on dryland have been maintained over a 6-year period with annual applications of 50 lb/ac nitrogen. Higher seed yields have been obtained from fall application of ammonium nitrate (low volatility) than from spring application of nitrogen fertilizer. Russian wildrye seed shatters readily when ripe. Seed fields should be swathed or, if drying equipment is available, straight-combined when seed is in the firm dough stage. Seed yields of Mankota are comparable to Swift and averaged 240 lb/ac from 10 station years at Mandan, North Dakota and Swift Current, Saskatchewan.

Seed Availability

Foundation seed of Mankota for certified seed increase is available from the USDA-SCS Plant Materials Center, P. O. Box 1458, Bismarck, North Dakota 58502. Very limited quantities of certified seed from commercial vendors will be available from the 1993 seed crop. One generation each of foundation

and certified seed beyond breeders seed is authorized.



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Russian Wildrye

Psathyrostachys juncea



A bunchgrass introduced from Siberia and Central Asia. Plant is 2 to 3.5 feet tall; seed head is an erect, compact spike that matures in July. Leaves are soft and lax, mostly basal. Leaf blade is strongly nerved, 6 to 12 inches long and up to 1/4 inch wide. Auricles are prominent and clasping. Ligules are short and membranous.



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